

Claims

22. A fitting for providing a substantially fluid-tight seal between an opening in a chamber wall and a pipe passing through said opening, said fitting comprising:-

- 5 (i) a tubular sleeve adapted to pass through the opening in the chamber wall and further adapted to allow the pipe to pass through the sleeve;
- (ii) a flange, extending radially outwardly from the sleeve, a first surface of the flange being configured to contact the chamber wall around substantially the whole circumference of the opening;
- 10 (iii) an energy transfer means situated at or near the first surface of the flange, said energy transfer means being adapted to heat the first surface of the flange in order to form a substantially fluid tight seal; characterised in that the tubular sleeve extends from both sides of the flange such that, in use, the fitting can be positioned on the inside or outside of the chamber wall.

15 SbC1) 23. A fitting according to Claim 22, in which the first surface comprises a fusible material which, when heated via the energy transfer means, at least partially melts, causing the fitting and the wall to be fused together.

24. A fitting according to Claim 22 in which the energy transfer means comprises 20 conduction means for conducting an electric current, said conduction means in use, being heated by the current, to cause said heating of the first surface.

25. A fitting according to Claim 22, in which the fitting is adapted for use with a wall which is of a material which is not suitable for being attached to the fitting by electrofusion, the first surface of the fitting incorporating an adhesive of a type which is activated by heat, wherein the heating of the first surface by the energy transfer means activates the adhesive and thereby bonds the fitting to the wall.

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26. A fitting according to Claim 25, in which the adhesive is selected from a thermoplastic, thermoset, cross-linking or pressure sensitive adhesive.
27. A fitting according to Claim 24, in which the conduction means comprises a heating wire which is embedded within the first surface.
- 5 28. A fitting according to Claim 22, in which the sleeve is of a substantially circular cross-section, and the flange is radial.
29. A fitting according to Claim 24, in which the fitting includes terminals for connecting the conduction means to a current supply.
30. A fitting according to Claim 22 wherein the fitting further comprises a sealing member or boot adapted to form a fluid tight seal between the sleeve and the pipe.
- 10 31. A fitting and sealing member according to Claim 30, in which the sealing member is resilient, and there is provided clamping means for clamping the sealing member to the pipe and/or the sleeve.
32. A method of forming a seal between an opening in a chamber wall and a pipe passing through said opening, the method comprising the steps of:-
- 15 (a) applying a fitting to the pipe, said fitting comprising:-
- (i) a tubular sleeve adapted to pass through the opening in the chamber wall and further adapted to allow the pipe to pass through the sleeve;
- 20 (ii) a flange, extending radially outwardly from the sleeve, a first surface of the flange being configured to contact the chamber wall around substantially the whole circumference of the opening;
- (iii) an energy transfer means situated at or near the first surface of the flange, said energy transfer means being adapted to heat the first surface of the flange in order to form a substantially fluid tight seal;
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characterised in that the tubular sleeve extends from both sides of the flange such that, in use, the fitting can be positioned on the inside or outside of the chamber wall;

- (b) applying energy to the energy transfer means and thereby heating
5 the first surface and, optionally, the portion of the wall of the chamber in the vicinity of the flange to cause the fitting to be come fused or bonded to the chamber wall in a fluid tight manner;
(c) applying a sealing member or boot to form a fluid tight seal between the sleeve and the pipe.

10 33. A method according to Claim 32, in which said heating is achieved by passing an electric current through conduction means located at or near the first surface of the flange.

34. A method according to Claim 32 in which the materials constituting the wall and the surface are such that the surfaces are fused together by a process of
15 electrofusion.

35. A method according to Claim 32, in which the method also includes providing an adhesive which is activated by said heating to cause the fitting to be bonded to the wall.

36. A method according to Claim 32 in which an adhesive is incorporated into
20 the first surface on the flange.

37. A method according to Claim 32, in which the wall comprises a manhole chamber wall for a subterranean fuel tank.

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